

**Received: 19 December 2023, Accepted: 15 January 2024**

**“Shadow Banking a Bibliometric and Scientometric Review and Future Research Agenda”**

**Osman Bin Saif, Khalid Mumtaz Khan, Erum Qureshi, Shahab Aziz,**

1. Faculty Bahria University, Islamabad. [osmansaif.buic@bahria.edu.pk](mailto:osmansaif.buic@bahria.edu.pk)
2. Faculty Bahria University, Islamabad. [khalid@bahria.edu.pk](mailto:khalid@bahria.edu.pk)
3. Faculty Bahria University, Islamabad, [qureshi.erum@yahoo.com](mailto:qureshi.erum@yahoo.com)
4. Faculty Bahria University, Islamabad, [saziz.buic@bahria.edu.pk](mailto:saziz.buic@bahria.edu.pk)

**Abstract**

The paper provides bibliometric and Scientometric analysis of the Shadow Banking literature. The analysis uses 425 research articles from the Scopus database. A bibliometric method was used to visualize the results using R-studio and VOS viewer software. We find that shadow banking literature has been growing over the years between (2012-2023). Financial regulations, regulatory arbitrage, financial stability, systematic risk, and financial crises are the popular research trends and collaboration trends identified. Future scholars and regulators may find our findings useful in comprehending the present patterns and directions of future research in the field of shadow banking.

*Keywords: Shadow banking, Bibliometric analysis, Regulation, Corporate social responsibility, Knowledge Mapping, Citation structure,*

*JEL Code: G00, G15, G24, M14, M16*

**1. Introduction**

Banks play a significant role in the economy, sustaining the credit system by taking money from savers and spending those funds to make loans. Banks commonly have to operate with an abundance of scrutiny from financial supervisors in their domestic countries and across the world. Shadow banks, often known as nonbank financial companies (NBFCs), can generally operate with little to no oversight from financial regulators. Institutions of shadow banking emerged as financial market innovators. They did not appear to be subject to the standard regulatory scrutiny and requirements for capital reserves and liquidity, but they were able to finance financing for real estate and other obligations. These guidelines are necessary for traditional lenders to help inhibit bank failures, runs on banks, and financial crises. Many of these institutions

were able to create financial instruments meant to follow the higher market and liquidity risks in their lending while avoiding the requirement to maintain the capital requirements regulators require of the financial institutions because they were able to elude regulatory scrutiny. The shadow banking sector grew during the 2007–09 financial crisis and was crucial in filling the loan demand that conventional financial institutions were unable to provide. The fallout from the financial crisis meant that regulators were watching this development closely. However, despite this amplified level of scrutiny, the region has continued to expand significantly. (Aldasoro et al., 2020).

Shadow banking, which refers to asset securitization and credit intermediation outside of traditional commercial banks, is one of the financial sectors with the quickest rate of growth in recent years (Board, 2019). Investment funds, money market funds (MMFs), securities brokers and dealers, investment firms, investment channels, loan brokers, companies that guarantee bills and associated instruments, factoring and leasing companies, and other such establishments are featured. Though McCulley, (2009) first used the term "shadow banking" to describe such operations in the US economy following the global financial crisis of 2008, there have been prior attempts in the past. Early research on shadow banking emphasized how it differed from traditional commercial banking. The majority of securitization activities necessitate short-term funding from money markets, and shadow banking lacks access to lender-of-last-resort loans and is not subject to the same regulatory monitoring as commercial banks (Pozsar et al., 2012).

According to Mehrling et al. (2013), the money markets are a common source of funding for shadow banks' capital market ventures. When interest rates are low, some of these institutions increase the amount of riskier but higher-yielding assets they own (Board, 2019). One of the most profitable and quickly growing financial sectors is shadow banking as a result of these characteristics. Repo market advantage increases these earnings even further. However, if shadow banking is unable to finance their holdings, these discrepancies can expose them to runs on their liabilities (Artha & de Haan, 2015). Unlike commercial banking, shadow banking does not have institutional safeguards against such a run, such as deposit insurance and lender-of-last-resort loan availability (Mehrling, 2010). Shadow banking is procyclical, as shown by the

evidence (Adrian & Shin, 2010; Gabor & Ban, 2016; Sissoko, 2017; Park, 2019; Schrimpf et al., 2021; Özgür, 2021). It increases liquidity and asset prices during expansions while decreasing them during times of financial tightening. Shadow banking might also be a significant contributor to financial instability if the money market's liquidity situation deteriorates further (Nesvetailova & Palan, 2013; Mehrling et al., 2013; Tokunaga & Epstein, 2018).

Both academics and politicians have paid close attention to the rapidly expanding shadow banking operations of non-financial organizations. Three applicable hypotheses are important in the literature regarding the economic drivers of shadow banking activities. The regulatory arbitrage hypothesis is one. The lack of explicit regulations surrounding shadow banking by the Basel Accords provides traditional banks and non-financial entities with an incentive to actively pursue regulatory arbitrage through financial migration toward the shadow banking sector (Nelson et al., 2018; Serletis & Xu, 2019; Xiao, 2021). The surplus gains from regulatory arbitrage have led to an increasing number of companies leaving their core industry to participate in shadow banking activities through a range of channels, including excess funds, entrusted agents, and equity innovation.

The competitiveness loss hypothesis is the second one. Commercial banks that are subject to regulations participate in shadow banking activities to save financing costs and cover possible revenues lost as a result of market competition, getting around regulations that limit credit coverage (Ahn & Breton, 2014). The managerial opportunism hypothesis is the third one. Firm managers frequently engage in opportunistic actions to achieve personal objectives, such as job promotions and compensation incentive programs, because of the conflicting interests and knowledge asymmetry between managers and shareholders. Managers may switch to shadow banking activities to achieve better profits whenever such opportunistic behaviors negatively impact the firm's financial performance, concealing any potential losses in the core business (Kim & Lu, 2011).

Shadow banking has developed as an adjunct to traditional banks to provide financial support for high-risk businesses through leveraged transactions, imperfect credit risk transfer, and maturity and liquidity transformation (Roy & Kemme, 2012). Shadow

banking activities may also threaten financial stability because of their complexity, cross-jurisdictional character, and connections to the banking industry (Hachem, 2018). The main causes of how shadow banking undermines financial stability are several. Firstly, the majority of shadow banking products are financial innovation instruments with high leverage ratios and maturity mismatches, such as structuring asset securitization. Secondly, because shadow-banking operations are less regulated, financial institutions and non-financial companies that engage in them often conceal the relevant information and making regulatory policies more challenging. Thirdly, although the risk associated with shadow banking is typically off-balance sheet, banks still have to take on debt and guarantee obligations when a risk event occurs, increasing the risk to the on-balance sheet of the banks and even their threat of bankruptcy. Finally, shadow banking may reduce the efficiency of monetary policy, which could worsen financial market volatility and endanger the financial system's well-being and stability (Hsu & Moroz, 2009; Gorton & Metrick, 2012; Allen et al, 2019). The regulatory arbitrage, credit intermediation, and risk-taking practices found in emerging market shadow banking institutions have been the subject of a significant amount of research (Acharya, Khandwala, et al., 2013; Chen et al., 2018). Some empirical research revealed how shadow-banking activity affects risk. According to Rosen (2012), shadow banking raises the arbitrage around regulatory limits, leading to high leverage and maturity mismatches.

*Research Question 1. What are the emergent trends in shadow banking research during 2009–2023?*

*Research Question 2. What are the most useful documents, authors, journals, and organizations?*

*Research Question 3. What are the most frequently used keywords in shadow banking Research?*

*Research Question 4. What are the authorship patterns of shadow banking research?*

*Research Question 5. Which is the impending area of research in shadow banking?*

## **2. Data and Methodology**

The quantitative results on shadow banking literature were obtained in this study by the application of a bibliometric approach. Researchers are using bibliometric analysis in conjunction with content analysis more and more frequently (Koskinen et al.,

2008). In order to convey the quantitative element of the literature, bibliometric reviews are combined with descriptive, integrative, systematic, or meta-analytical studies to assure validity and reliability (Martínez-Climent et al., 2018). Furthermore, the approach varies from other similar verification methods in that it takes into account an important, detailed, and perceptive component of the phenomenon of interest.

### ***2.1 Study Design***

As seen in (Fig. 1), this study followed a three-step methodological procedure. Paltrinieri et al. (2019) devised the original approach, which is adapted for this investigation. First, papers related to the meta-literature search are found by searching reputable databases. Finding pertinent literature in the chosen database is the next step, and a bibliometric evaluation is the last one before the data from the chosen literature is analyzed and conclusions are drawn.

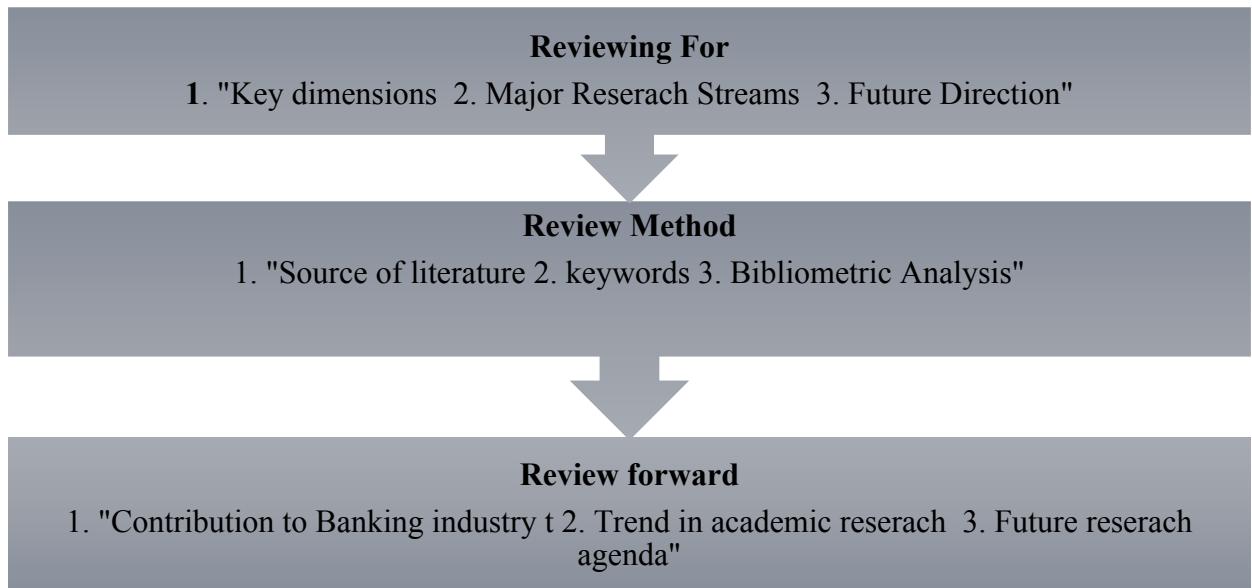


Figure 1: Research approach

### ***2.2. Data selection strategy***

The popular database held by Elsevier, Scopus, is where the data for the bibliometric review is gathered. The bibliometric analysis-based articles from multiple prior studies have made use of the Scopus database (Kent Baker et al., 2020; Goodell et al., 2021). Scopus was selected for a number of reasons. To start with, this is the biggest peer-reviewed, multidisciplinary database. It is also the most reliable database for reporting financial literature. Third, a large number of earlier bibliometric reviewers in the

banking and finance fields have made use of the Scopus database (Biancone et al., 2020; Dubey & Chandani, 2022). In cases where manuscripts do not align with the study's aims, researcher involvement is frequently required to remove them from consideration. Scopus databases were accessed on 1<sup>st</sup> August 2023, and different keywords were used as shown in Fig 1 & 2.

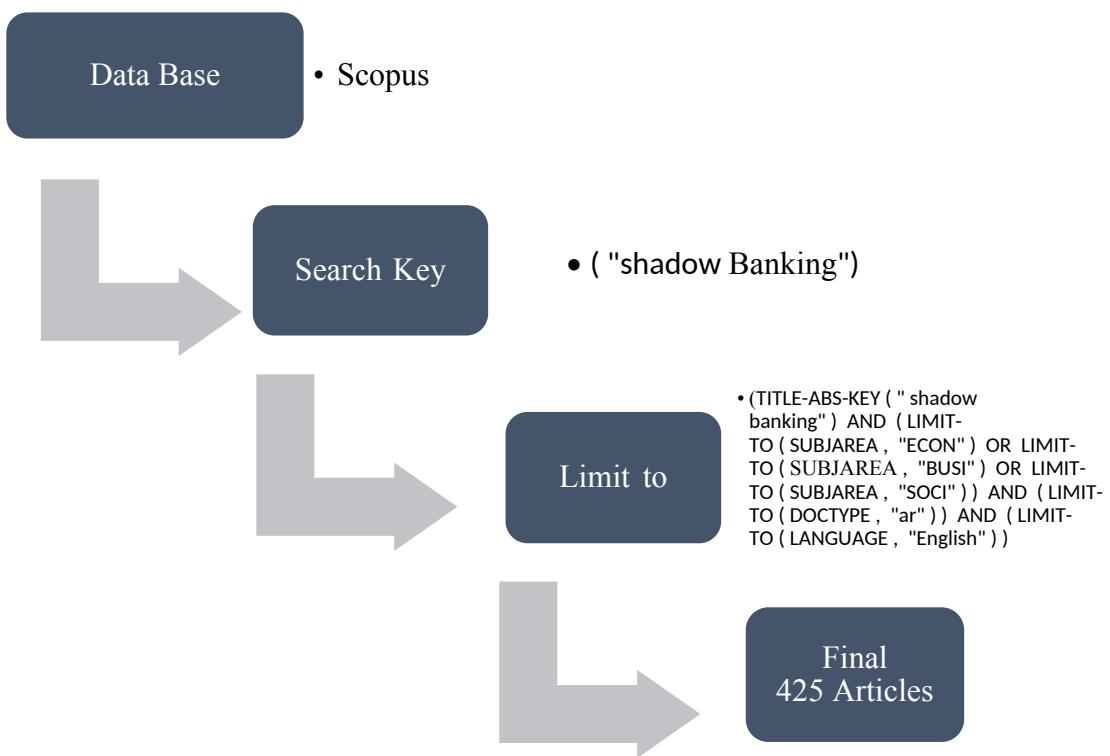


Fig 2 Data search process

Fig 3 shows the distribution of the documents which comprises of articles, book chapters, books, letters, conference papers, etc. Most of the literature comparison of research articles is 468 however the articles which are only in the English language are 425 which are used for the present study.

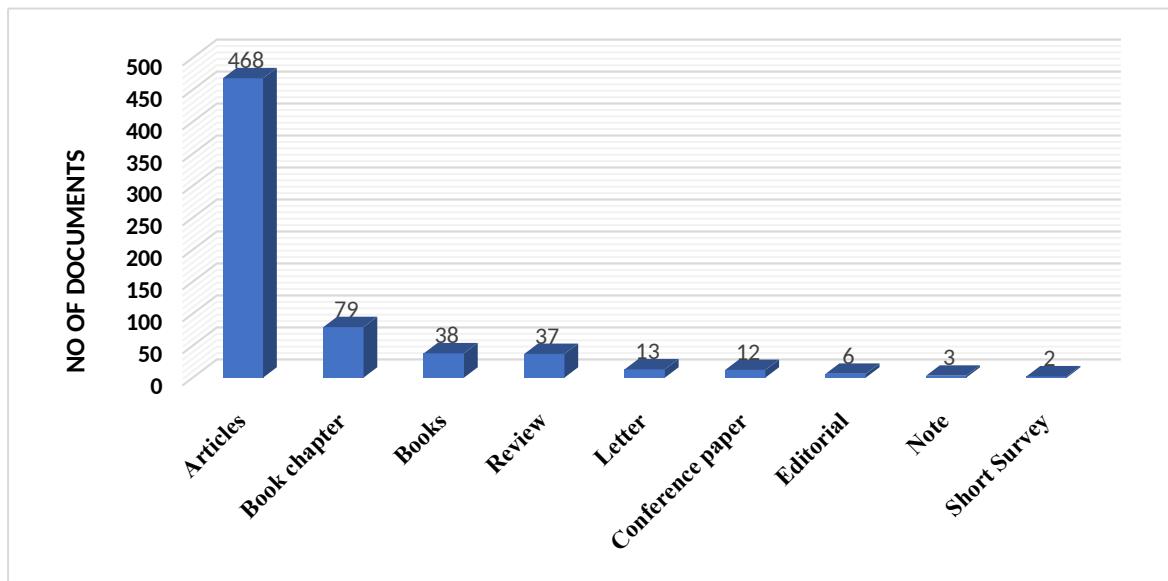


Fig 3 Description of the documents

#### 2.3 Tools of Analysis

Three bibliometric analysis tools are used in this study: Excel, VOSviewer, and R-Studio. The most popular tool for creating bibliographic data for records is R-Studio. We conducted network and content analysis using VOSviewer. The users can design and view bibliometric networks with VOSviewer (van Eck & Waltman, 2014). To extract information about documents, authors, sources, and extract subjects, utilize Bibliometrix tools. The excellent charts were made using Microsoft Excel.

#### 2.4 Type of analysis

Three different analysis types were used in this study: content, citations, and general performance. The general performance displays broad details about the statistics, the overall publication trend, the most pertinent authors, and the top nations. In order to do the clustering, the citation analysis displays highly cited journals, nations, and authors; in contrast, the network and content analysis displays bibliographical coupling, co-citation, and co-occurrence analysis.

### 3. Results and Findings

Table 1 presents comprehensive details regarding the dataset under review. It was obtained from the biblioshiny program under the data head and prepared to provide pertinent information. A total of 671 authors have authored 425 articles, with 157 papers published by a single author and 529 documents written by multiple authors.

Table 1 Main Information about the Data

Description	Results
Timespan	2009:2023
Sources (Journals, Books, etc.)	225
Documents	425
Average citations per document	13.26
References	18683
Authors	671
Authors of single-authored docs	142
Author of Multi-author documents	529
Single-authored docs	157
Document per author	0.63
Author per document	1.57
Co-Authors per document	2.06

The goal is to have 0.63 documents per author and 1.57 authors per document. Table 1 demonstrates the collaboration of writers from various fields in their study, analysis, and establishment of the connection between climate finance. Figure 4 displays the yearly publication and citation trend of the research literature in the area of climate finance. Data from the Biblioshiny application is used to construct the graph; the data is exported into Excel, and the graph is then ready to show the trends.

It is clear that the tendency is rising and that the field of study has been steadily growing over the period of time. From 2009 to 2023, or the first part of the millennium, the field of climate financing grew slowly; but, starting in 2021, it began to grow more quickly. Interestingly, 47 articles were published at the time of data gathering in 2023, compared to 58 articles published in 2022 alone. One of the more well-known topics is shadow banking, and there is a growing body of literature in this field. The current trend is partially explained by the RQ1 in the section above; Section 6 will cover the emerging trends.

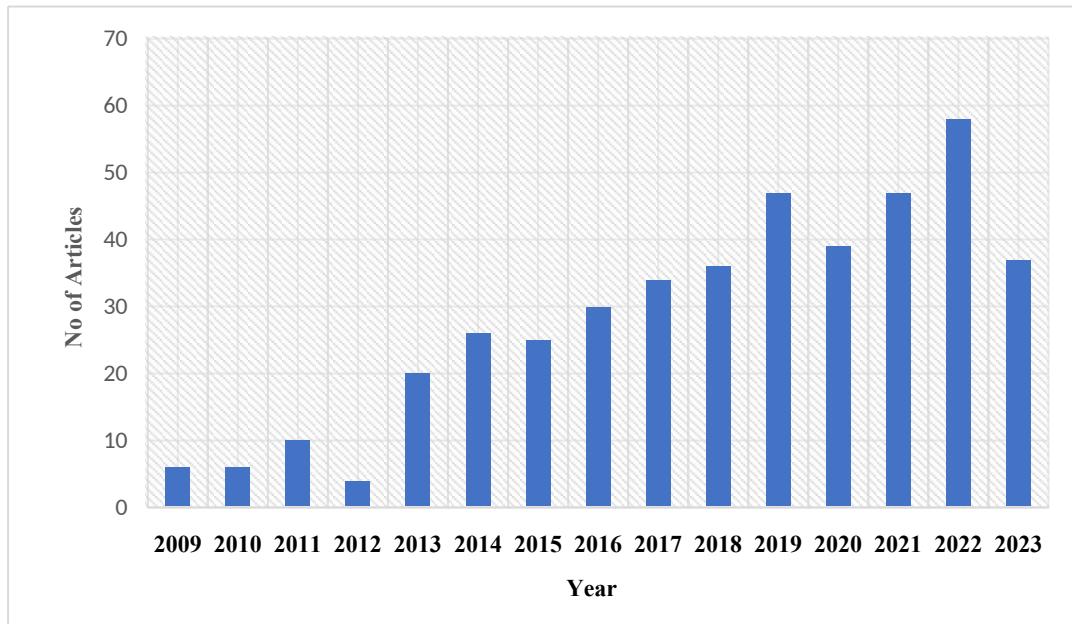


Fig 4 Yearly Publication Trend

### 3.1 Most Influential authors, affiliations, and countries

The increase in articles within this field was linked to the affiliations, sources, and writers within the scientific community. The authors most pertinent to this topic are displayed in Figure 5. Gabor D is the most impactful researcher with eight published articles, followed by Lin JH and Hodula, M are the leading authors with seven and five articles respectively.

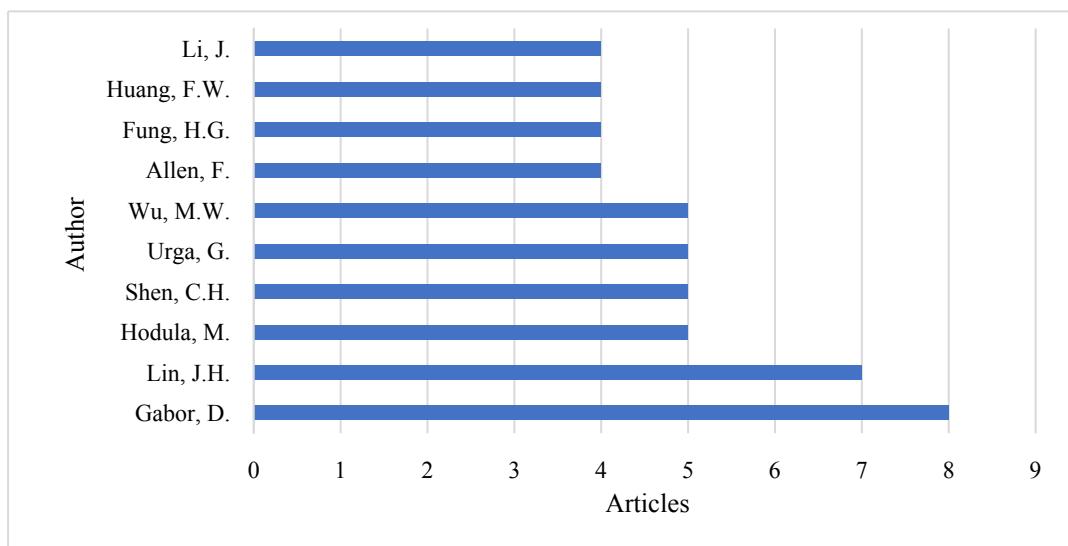


Fig 5 Most Influential Authors

Table 2 presents the relative affiliations in the field of shadow banking. China and UK are the leading affiliations of the researchers, which are contributing to this field. This is because this area of research is of great interest to researchers from this area. Also, China is advancing in its research output and producing a great amount of research in this area.

Table 2 Affiliation of the authors

Affiliation	Articles
“Central University of Finance and Economics”	12
“National Bureau of Economic Research”	12
“City, University of London”	12
“Southwestern University of Finance and Economics”	11
“Fudan University”	10
“University of the West of England”	9
“Tamkang University”	8
“Universiteit van Amsterdam”	7
“Chinese University of Hong Kong”	7
“National Taipei University”	6

Table 3 shows the most impactful authors in the field of shadow banking. Gabor D is the most influential author in this field with an H-Index of 7 and a total citation of 403. Fung H-G and Urga G are the other two authors with H-Index 4 and the rest of the authors have similar H-index.

Table 3 Author Impact

Author Names	H-index	G-index	M-index	TC	No	Year
Gabor D	7	8	0.875	403	8	2016
Fung H-G	4	4	0.444	87	4	2015
Urga G	4	5	0.571	35	5	2017
Allen F	3	4	0.5	131	4	2018
Ban C	3	3	0.375	196	3	2016
Bengtsson E	3	3	0.273	67	3	2013
Bordo Md	3	3	0.3	78	3	2014
Ding N	3	3	0.333	25	3	2015
Jagtiani J	3	3	0.5	224	3	2018
Jia J	3	3	0.333	25	3	2015

Figure 6 shows that the USA is the leading country followed by China and the UK which are contributing to the field of shadow banking research. Most of the other countries on the list are developed countries. This shows that this phenomenon is of interest in mostly studied developed countries and developing countries, there is less research in this area.

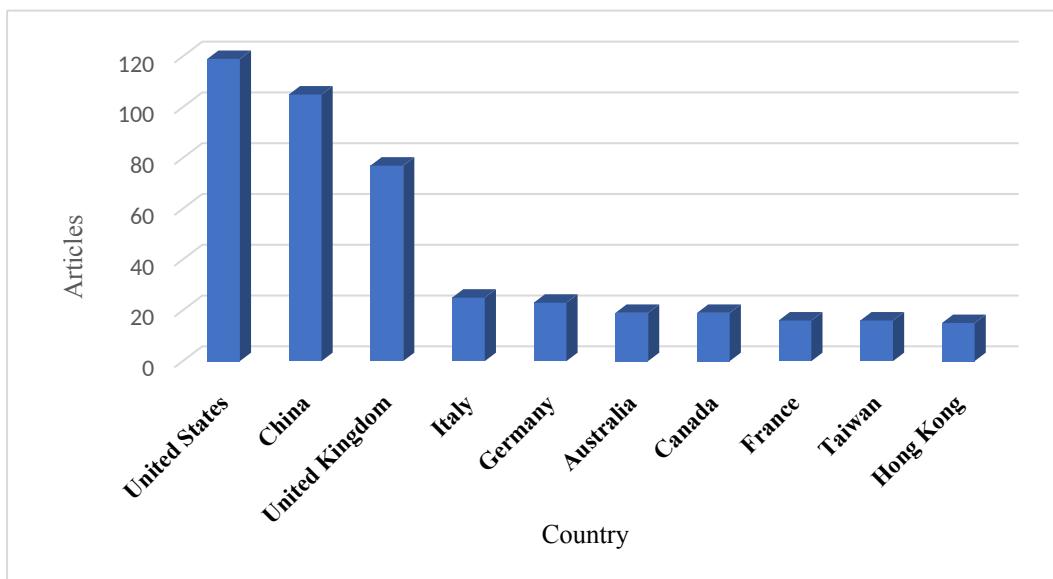


Fig 6 Most affiliated countries

Table 4 shows the top 15 journals which publish work related to shadow banking. *“Review of International Political Economy, International Review of Economics and Finance, and Journal of Banking and Finance”* are the top three journals that publish research related to shadow banking. Followed by the *“Journal of International Money and Finance, Applied Economics, Emerging Markets Finance, and Trade”*. Almost all the journals are related to finance and economics as these are very relevant to the area of the study. The quartile of the journal shows that most of the journals are Q1 which shows this work is being published in high-quality journals.

Table 4 Top Sources on Shadow Banking Research

S No	Journal	Articles	Quartile
1	“Review of International Political Economy”	13	Q1
2	“International Review of Economics and Finance”	9	Q1
3	“Journal of Banking and Finance”	8	Q1

4	“Journal of International Money and Finance”	8	Q1
5	“Applied Economics”	7	Q2
6	“Emerging Markets Finance and Trade”	7	Q1
7	“Journal of Financial Economics”	7	Q1
8	“Journal of Financial Intermediation”	7	Q1
9	“New Political Economy”	7	Q1
10	“Research In International Business and Finance”	7	Q1
11	“Finance Research Letters”	6	Q1
12	“Journal of Banking Regulation”	6	Q2
13	“Journal of Economic Dynamics and Control”	6	Q1
14	“Applied Economics Letters”	5	Q2
15	“Economic Modelling”	5	Q1

#### 4. Keyword Analysis and Thematic Analysis

Table 5 and 6 shows the clusters and frequency of the keywords being used with their link strength. The keywords analysis has shown that “*Fintech, innovation and Regulation, Financial crises and stability, Bank interest and wealth Management, Risk, Capital adequacy and monetary policy, Systematic Risk, and Financial constraints*” are the main areas of focus in shadow banking research.

Table 5 Keyword Analysis (Themes)

No/Colour	Most Frequent Keywords (n>15)	Area of Focus
Cluster 1	Credit Intermediation, Financial innovation, Financial regulation, Fintech, Securitization	Fintech, innovation, and Regulation
Cluster 2	Financial friction, Interconnectedness	Interconnectedness
Cluster 3	Financial stability, global financial crises, money market funds,	Financial crises and stability
Cluster 4	Bank interest, Bank Margin, regulations, capital margin, wealth management	Bank interest and wealth Management
Cluster 5	Capital adequacy, monetary policy, regulatory arbitrage, risk-taking	Risk, Capital adequacy and monetary policy
Cluster 6	Financial crises, liquidity, systematic risk	Systematic Risk
Cluster 7	Bank competition, financing constraints, information asymmetry	Financial constraints

Table 6 shows the occurrence and links strengths of the frequently used keywords. Financial regulations, systematic risk, monetary policy, fintech, and financial stability are the most frequently used words in shadow banking research.

Table 6 Frequency used words with link strengths.

Keywords	OCC	LS	Keywords	OCC	LS
Financial regulation	22	59	Financial crises	18	30
Systematic risk	24	57	Regulation	13	30
Monetary policy	22	40	Financial innovation	8	20
Fintech	10	35	Liquidity	9	20
Financial stability	15	32	Financial arbitrage	11	18

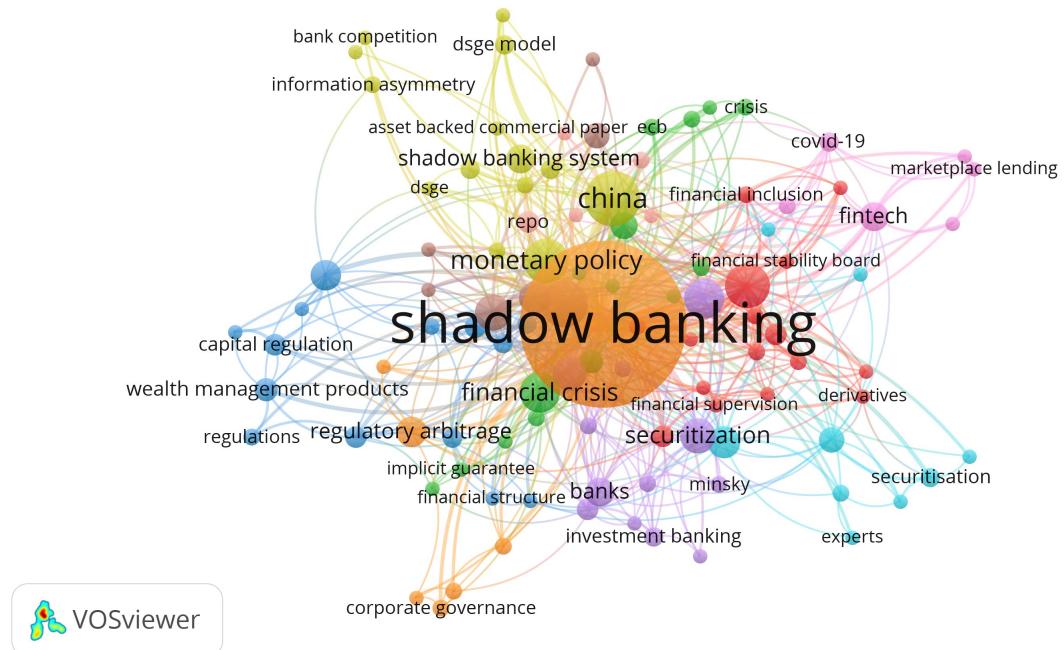


Figure 7 Co-occurrence of keywords.

Fig 7 shows the keywords occurrence which corroborates with the table 5 and 6. Fig 8 shows the year trend in shadow banking research. Recently we have seen the trend toward COVID-19, financial constraints, and economic policy uncertainty.

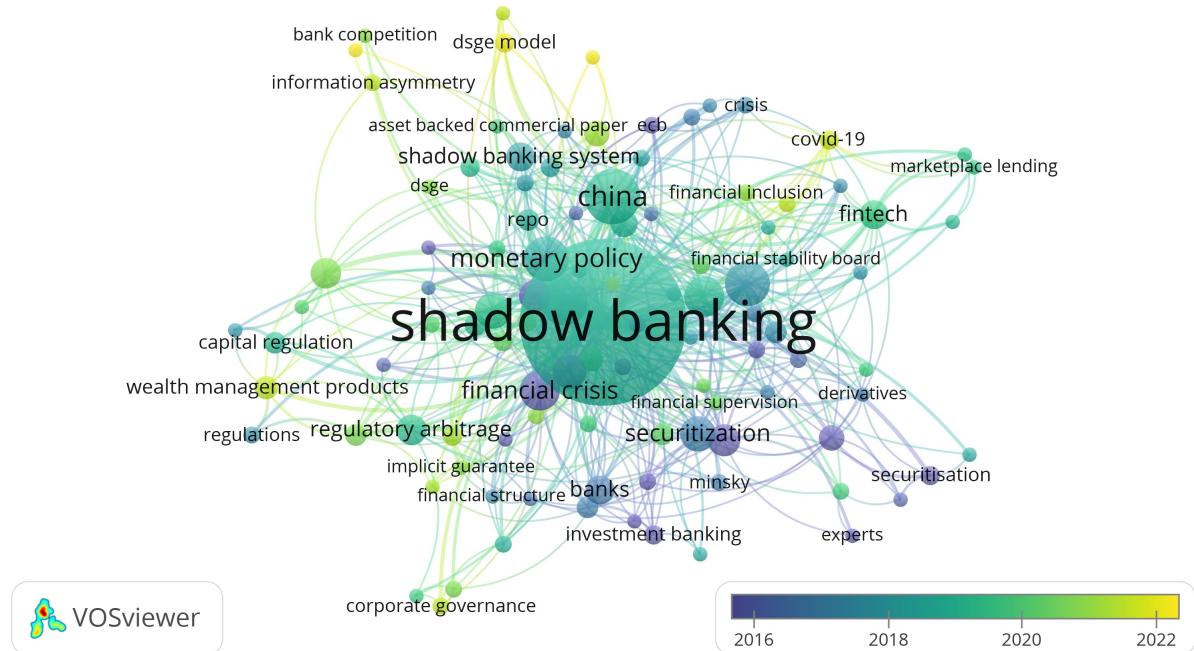


Figure 8 Co-occurrence of keywords (overall)

#### 4.1 Citation Analysis

The different citation analysis is a form of bibliographical reference analysis (Seglen, 1989). It detentions a link between the two documents. The different research scholars reveal that it distorts the paper's overall quality. Therefore, sometimes the citation analysis contains a negative sense of citations and self-citations. Although this criticism and the controversial arguments, the citation analysis is still a good element of influence. It helps us to learn more about a field or any interesting topic by recognizing an influential piece of work. (Garfield 1979). Rather than calculating all citations, the analysis of this study measures citations between the authors who published in quality journals and then shows the influence of top authors. Table 7 shows that Gabor D is the most impactful author followed by Fung H-G and Urga G. The rest of the authors have almost similar H and G indexes.

Table 7 Author's Impact

S No	Author Names	H-index	G-index	M-index	TC	No	Year
1	Gabor D	7	8	0.875	403	8	2016
2	Fung H-G	4	4	0.444	87	4	2015
3	Urga G	4	5	0.571	35	5	2017
4	Allen F	3	4	0.5	131	4	2018
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6	Bengtsson E	3	3	0.273	67	3	2013
7	Bordo Md	3	3	0.3	78	3	2014
8	Ding N	3	3	0.333	25	3	2015
9	Jagtiani J	3	3	0.5	224	3	2018
10	Jia J	3	3	0.333	25	3	2015

Table 8 shows the impact of different sources. The “Review of International Political Economy, International Review of Economics and Finance Journal of Banking and Finance, Journal of Financial Economics, and Journal of International Money and Finance” are the top five journals, which are publishing shadow-banking research. These are almost the most relevant journals for researchers, which are interested in doing research in this area.

Table 8 Journal Impact

S No	Source	H-index	G-index	M-index	TC	No	Year
1	“Review of International Political Economy”	9	13	0.9	414	13	2014
2	“International Review of Economics and Finance”	6	9	0.667	134	9	2015
3	“Journal of Banking and Finance”	5	8	0.357	105	8	2010
4	“Journal of Financial Economics”	5	7	0.455	637	7	2013
5	“Journal of International Money and Finance”	5	8	0.455	122	8	2013
6	“Cambridge Journal of Economics”	4	4	0.5	66	4	2016
7	“International Journal of Political Economy”	4	5	0.267	61	5	2009
8	“Journal of Economic Dynamics and Control”	4	6	0.4	51	6	2014
9	“New Political Economy”	4	7	0.444	105	7	2015
10	“Research in International Business and Finance”	4	5	0.571	35	7	2017

Fig 8 There were a total of 18166 cited reference in 108 documents that meets the criteria of greater than 5 citations per paper. The nodes in the below figure represent a single reference and the size shows the number of citations per paper. the link between these nodes shows the co-citation relationship. The relationship strength is higher for thicker lines. These nodes belong to different clusters depending upon the similarities.

Figure 9 shows the existence of seven groups. The article by Check K was in Chinese context however there are interesting findings that contractionary monetary policy led to the shadow banking. Hampering the monetary policy during the time period.

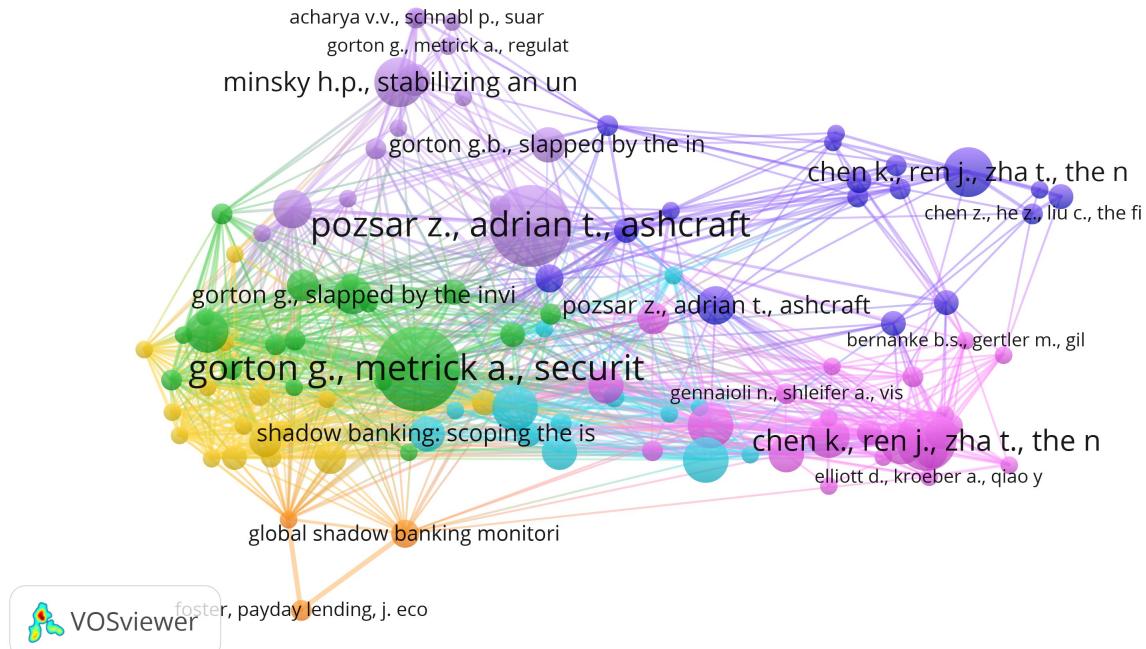


Fig 9 Co-citation of the cited author (n>5)

Appendix I shows the top ten most cited research papers in shadow banking. The research paper titled “Regulating the Shadow Banking System” is the highest cited paper in shadow banking literature. The author proposed that “the use of insurance for MMMFs, combined with strict guidelines on collateral for both securitization and repos, with regulatory control established by chartering new forms of narrow banks for MMMFs and securitization and using the bankruptcy safe harbor to incentivize compliance on repos” the second highly cite article is related to the model of the shadow banking. The article concluded that “outside investor wealth drives the demand for riskless debt and indirectly for securitization, bank assets and leverage move together, banks become interconnected through markets, and banks increase their exposure to systematic risk as they reduce idiosyncratic risk through diversification. The shadow banking system is stable and welfare improving under rational expectations, but vulnerable to crises and liquidity dry-ups when investors neglect tail risks” The rest of the articles discuss the role of role monetary policy, regulations, and financial crises towards shadow banking.

## 4.2 Network Analysis

### 4.2.1 Bibliographical Coupling

The bibliographic coupling permits us to discover the main items in our sample set (Boyack & Klavans, 2010). This method is very useful for recognizing the commonly cited articles in the bibliographies. Figure 10 presents the commonly cited articles with the literature on shadow banking. The minimum citation threshold was to be set by 3. The results reveal that most cited articles are written by Gorton G (2010). Regulating shadow banking is the most cited article within the shadow banking literature.

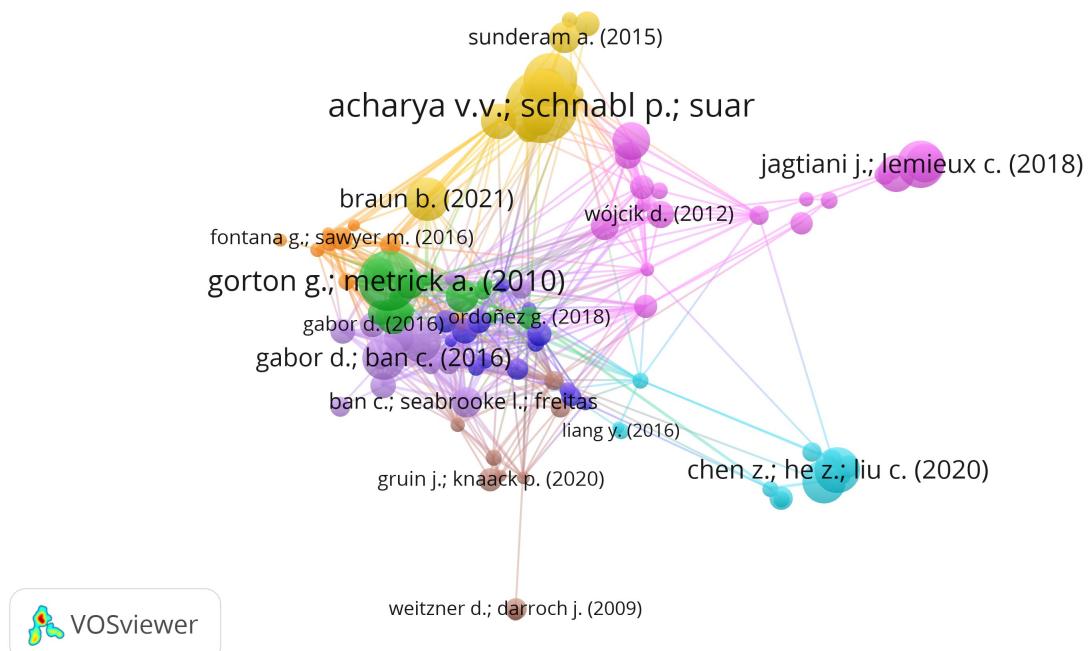


Figure 10 Bibliographic coupling of the documents (n>10)

Figure 11 shows that Review of the International Political Economy is the leading journal which is the most connected journal as shown in Fig 11.

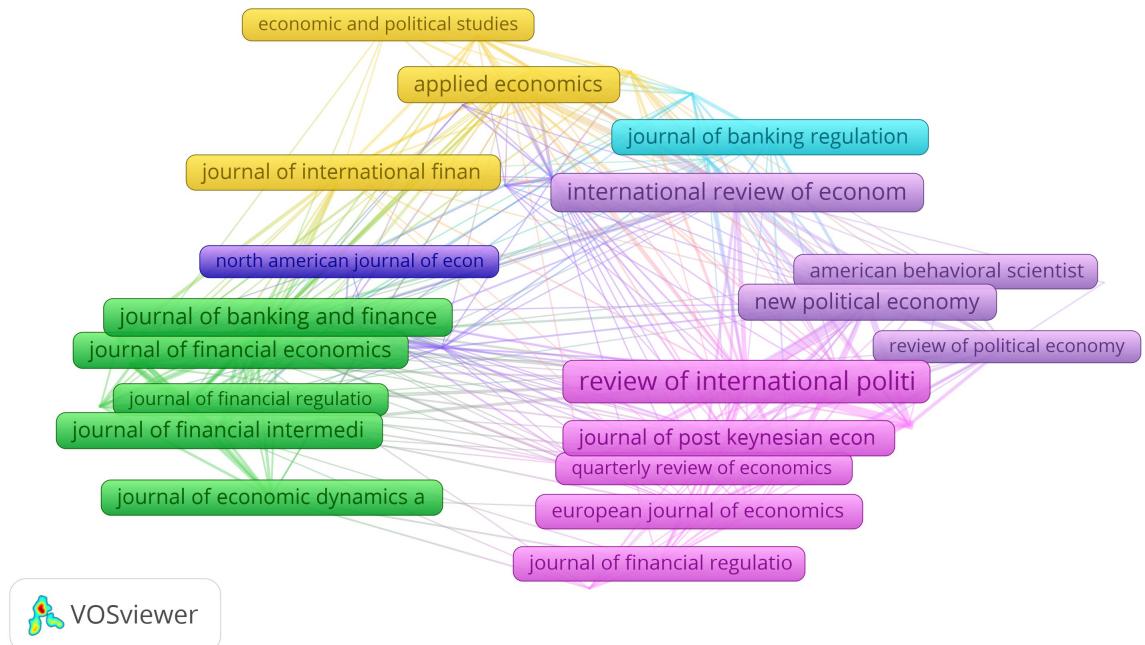


Figure 11 Bibliographic coupling of the sources ( n>3)

## 5. Content Analysis and Conclusion

Before 2008, shadow banking did not receive much attention in the finance literature. Numerous studies were conducted following the financial crisis of 2008, with a focus mostly on the causes and consequences of shadow banking. First, the previous research looks at how shadow banking affects monetary policy. In the deposits channel, the growth of shadow banking money during the monetary tightening cycle significantly offsets the fall in bank deposits. According to Sunderam (2015), investors truly treat shadow bank loans as money. In this way, despite what the traditional theories of monetary transmission predict, the shadow-banking channel dampens the deposit channels, luring in more deposits (Xiao, 2021). On the other side, shadow banking lessens the influence of monetary policy on the availability of bank credit in the bank-lending channel. Securitization gives banks a second source of funding and reduces the impact that capital availability restrictions have on the amount of bank lending that is available (Milcheva et al., 2019). Additionally, Chen et al. (2018) revealed that non-state banks boost shadow banking products to get around bank lending limits, which diminishes the efficacy of contractionary monetary policy on the total credit of the banking system.

Second, earlier research has also looked at how shadow banking affects financial markets. Through its relationship with conventional banks, shadow banking increases systemic risk (Miele & Sales, 2011). Markets connect banks and shadow banking, increasing their exposure to systemic risk (Gennaioli et al., 2013). According to Plantin (2015), as bank capital requirements are tightened, shadow banking operations increase, increasing the risk of both banks' and shadow banks' liabilities that resemble money. Furthermore, shadow banking's high level of leverage is bad for the stability of the financial system. Securitization spreads out the idiosyncratic risk and naturally reaches larger leverage than banks (Gennaioli et al., 2013), but because shadow banks have huge debt loads, they are susceptible to bank runs. The majority of unregulated institutions collapsed because of the combination of the sources of instability, increasing the vulnerability of the financial sector (Ferrante, 2018). According to Iglesias-Casal et al. (2020), securitization may not improve financial stability if the need to increase assets results in a lowering of lending requirements. Last but not least, shadow banking guarantees serve as a crucial avenue for risk transfer between them and banks. According to Acharya et al. (2013), asset-backed commercial paper conduits are a kind of securitization without risk transfer because they include explicit guarantees from commercial banks, which has caused the biggest banking crisis since the Great Depression.

A number of factors are seen to be important for the emergence of shadow banking, including demand from institutional investors, capital stringency in the banking industry, investment return from stocks and bonds, and economic fundamentals. Valckx (2014) provides an overview of probable reasons for these factors. Firstly, A rise in shadow banking operations results from entities being forced to circumvent this through non-bank intermediation due to rising capital stringency in the banking sector (Barth et al., 2013; Duca, 2016). Secondly, the growth in the assets of investment funds and other non-bank financial market intermediaries has often coincided with rising demand from institutional investors, such as pension funds and insurance companies (Pozsar et al., 2012; Valckx, 2014). Thirdly, when compared to government bonds and stock markets, the shadow banking sector frequently provides higher-yielding assets to investors. As a result, reduced investment returns from equities and bonds may prompt investors to seek higher yields, fueling the rise of shadow banking

assets (Goda & Lysandrou, 2014). Fourthly, According to Mandel et al., (2012), with the significant role that banks and their holding companies play in the credit intermediation chain, a better expansion of the banking sector's assets offers stronger funding support for the shadow banking sector. Finally, stronger economic essentials contribute to higher economic efficiency and further encourage the growth of financial markets, which supplement the expansion of shadow banking (Watkins, 2011; Barbu et al., 2016).

One possible explanation for the interconnectedness of the shadow banking system is that investors' portfolio balancing and rebalancing activities allow the co-movement of shadow banking assets across borders. These actions are recognized as one of the incentives in exchange-rate theory, in which domestic investors repatriate some of their foreign investment when the foreign investment returns are much higher than their domestic holdings. The primary reason for such funds' repatriation is to lessen currency risk exposure (Hau & Rey, 2004). The reallocations are also driven by (I) a turn-chasing strategy toward markets that will outperform (II) a stronger demand for assets denominated in a variety of currencies (III) an international diversification influenced by the degree of diversification and the cost of rebalancing, according to mounting evidence. (Curcuru et al., 2014; Gabaix & Maggiori, 2015; Camanho et al., 2018). These portfolio rebalancing efforts have become increasingly essential in driving the co-movement of shadow banking assets over the last decade (Puy, 2016; Fong et al., 2018).

This study examines Shadow-banking research using bibliographic analysis. In this unique study, the performance of publications of authors, different journals, and countries is evaluated. This study shows a bibliographic review of Shadow-banking to ascertain areas within which different researchers are studying elements of Shadow-banking, the overall inclination of total articles from year to year, the most productive and cited researchers of Shadow-banking, and the most suitable journals for the literature review. Additionally, this research examined the networks of co-citations, thematic maps, three-fold maps, and co-occurrence. This research gives comprehension by appraising the literature and summarizing the existing research. The bibliometric review of Shadow-banking research articles was collected from the Scopus database. The most common language for the articles is English, and the area

with most of the published articles is (Financial Regulation and Systematic Risk). The country that has done a greater number of Shadow-banking research (USA and China). Mostly the (Required information) has published several research papers on Shadow-banking. The most substantial Shadow-banking author is (Gabor D)

## 6. Future Research Avenue

Table 9. Future Research Questions

S No	Future Research Questions	Reference
1	What are the factors that affect corporate shadow banking behavior?	(Han et al., 2023)
2	To investigate the shadow banking beta predictive abilities in bond markets or foreign exchange markets.	(Wei et al., 2022)
3	To investigate the interrelationships between risk, competition, performance, and shadow banking.	(Tan et al., 2022)
4	How do different types of firms (state-owned and politically connected private firms) and regulation policies influence shadow banking in emerging economies?	Qiuyue Zhang (2023)
5	Credit discrimination, government policies, regulation, and shadow banking in emerging economies.	Chun Jiang (2023)
6	Financial citizenship, Prudential regulation, and Shadow banking in Emerging economies: Does the Bank competition Matter?	(Jafri, 2023)
7	How macro-financial shocks, and shadow banking, affect on systematic risk	(Hodula, 2022)
8	Is the development of shadow banking can influence the monetary policy transmission mechanisms for better or for worse?	Julan Du (2023)
9	Prudential Regulation, Non-state shareholder governance, and Shadow banking business in emerging economies.	(Ren & Shao, 2022)

Therefore, considering the relevance of this step in the search for Shadow banking, we propose the following future research agendas in two folds. Table 9 shows the first-fold research question for future research concerning well-written and reputed articles. The second-fold research question for future research is the following: (1) how does shadow banking affect on financial stability with the role of bank globalization? (2) The business of shadow banking and manufacturing firm risk behavior in emerging economies. (3) Nexus between bank concentrations, shadow banking, and bank Globalization: Cross-country analysis (4) To examine the interrelationship between systematic risk, financial friction, and systematic risk. (5)

How do macro-financial factors and shadow banking affect sustainability with the role of property rights?

**Declaration section**

**Ethics approval and consent to participate**

*Not applicable*

**Consent for publication**

*Not applicable*

**Availability of data and materials**

*Material is available on request*

**Competing Interests:**

*The authors declare no conflict of interest*

**Funding**

*Not applicable*

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Appendix I Top 20 Most Cited Articles

S No	Authors	Title	Year	Source Title	Cited by
1	Gorton G.; Metrick A.	Regulating the shadow banking system	2010	Brookings Papers on Economic Activity	215
2	Gennaioli N.; Shleifer A.; Vishny R.W.	A Model of shadow banking	2013	Journal of Finance	174
3	Chen K.; Ren J.; Zha T.	The nexus of monetary policy and shadow banking in China	2018	American Economic Review	140
4	Chen Z.; He Z.; Liu C.	The Financing of Local government in China: Stimulus loan wanes and shadow banking waxes	2020	Journal of Financial Economics	128
5	Allen F.; Qian Y.; Tu G.; Yu F.	Entrusted loans: A close look at China's shadow banking system	2019	Journal of Financial Economics	112
6	Plantin G.	Shadow banking and bank capital regulation	2015	Review of Financial Studies	87
7	Rixen T.	Why reregulation after the crisis is feeble: Shadow banking, offshore financial centers, and jurisdictional competition	2013	Regulation and Governance	78
8	Moreira A.; Savov A.	The Macroeconomics of Shadow Banking	2017	Journal of Finance	77
9	Lysandrou P.; Nesvetailova A.	The role of shadow banking entities in the financial crisis: a disaggregated view	2015	Review of International Political Economy	66
10	Chernenko S.; Sunderam A.	Frictions in shadow banking: Evidence from the lending behavior of money market mutual funds	2014	Review of Financial Studies	63

Annexure 1 Latest Articles on Shadow Banking (2023)

Authors	Title	Source title
Jafri J.	Financial citizenship and shadow banking in Pakistan: a study of two deposit-taking microfinance banks	Eurasian Geography and Economics
Bashir U.	Shadow banking, political connections and financial stability of Chinese banks: an empirical investigation	Applied Economics Letters
Guo S.; Lin G.; Ouyang A.Y.	Are pro-SME credit policies effective? Evidence from shadow banking in China	Economic Modelling
Quaglia L.; Spendzharova A.	Explaining the EU's Uneven Influence Across the International Regime Complex in Shadow Banking	Politics and Governance
Hodula M.; Libich J.	Has monetary policy fueled the rise in shadow banking?	Economic Modelling
Han X.; Hsu S.; Li J.; An R.	Economic policy uncertainty, non-financial enterprises' shadow banking activities and stock price crash risk	Emerging Markets Review
Wullweber J.	Challenges for monetary policies in the 21st century: Financial crises and shadow banking	Handbook on Critical Political Economy and Public Policy
Petkovski M.; Stojkov A.; Kjosevski J.	Investigating the Factors Influencing Shadow Banking in EU Member States	Eastern European Economics
Allen F.; Gu X.; Li C.W.; Qian J.“; Qian Y.	Implicit guarantees and the rise of shadow banking: The case of trust products	Journal of Financial Economics
Ogar A.; Anyadighibe J.; Abanbeshie J.; Etuk A.; Ejia B.	“Shadow banking and micro-, small and medium scale enterprises: A municipal assessment in Nigeria”	Banks and Bank Systems
Du J.; Li C.; Wang Y.	Shadow banking of non-financial firms: Arbitrage between formal and informal credit markets in China	Journal of Financial Intermediation
Zheng H.	The impact of shadow banking activities on carbon dioxide emissions: empirical evidence from China	Environmental Science and Pollution Research
Zhang Q.; Que J.; Qin X.	Regional financial technology and shadow banking activities of non-financial firms: Evidence from China	Journal of Asian Economics

Liu H.; Tao Y.; Zeng L.; Chen D.	Investor-enterprise interactions and shadow banking of non-financial enterprises in China	Finance Research Letters
Isayev M.; Bektas E.	The nexus between commercial bank lending and shadow banking assets: do bank risks and profitability moderate? Evidence from emerging markets	Applied Economics Letters
Yang T.; Zhu C.	High-speed railway and shadow banking: evidence from finance leases	Applied Economics
Poeschl J.	The Macroeconomic Effects of Shadow Banking Panics	B.E. Journal of Macroeconomics
Zheng H.	The impact of bank's engagement in shadow banking activities on bank's sustainability: Evidence from Chinese commercial banks	Environmental Science and Pollution Research
Liu C.; Zhao Y.	Analysis of the non-linear relationship between Interest Rate Distortions in China's Shadow Banking System and short-term Capital Flows	Emerging Markets Finance and Trade
Lin G.; Ouyang A.Y.	Macroprudential policy leakage: Evidence from shadow banking activities of Chinese enterprises	Contemporary Economic Policy
Gebauer S.; Mazelis F.	Macroprudential regulation and leakage to the shadow banking sector	European Economic Review
Li W.; Wang S.; Xu C.	Has shadow banking promoted interest rate liberalization? Empirical evidence from Chinese commercial banks	Applied Economics Letters
Jiang C.; Chang Y.-Q.; Ge X.; Si D.-K.	Identifying the impact of bank competition on corporate shadow banking: Evidence from China	Economic Modelling
Pan H.; Fan H.	Research on Shadow Banking and Banking System Stability Considering the Network Structure;	Complex Systems and Complexity Science
de Nichilo S.	Enterprise risk management and shadow banking systems: The case of European Union	Concepts, Cases, and Regulations in Financial Fraud and Corruption
Han X.; Feng Y.; Li J.	Shadow banking activities of non-financial companies and the information content of stock prices	Journal of Asian Economics
Zhang J.; Bi Z.; Hu M.; Meng Q.	Shadow banking and commercial bank: evidence from China	Applied Economics
Han X.; Aibai A.; Xie X.	Fiscal decentralization and shadow banking activities of non-	Finance Research Letters

financial enterprises  
Ozgur G.  
The cross-border interconnectedness of shadow banking  
Dewi V.I.; Effendi N.; Anwar  
Do Shadow Banking Depositors Discipline the Market?  
M.; Nidar S.R.; Fitrijanti T.;  
Tjandrasa B.

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Economic Modelling  
Australasian Accounting, Business  
and Finance Journal